PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference	FOR FURTHER ACTION See Form PCT/IPEA/416	
caspase		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/FI 2003/000735	07.10.2003	09.10.2002
International Patent Classification (IPC) or national classification and IPC		
C07K 16/42, A61K 38/00, C07K 7/00, A61P 37/00		
Applicant		
Dudich Elena et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 a. ☐ *(sent to the applicant and to the International Bureau)* a total of _____ sheets, as follows:
 ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))
 _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
 - ☒ Box No. I Basis of the report
 - ☐ Box No. II Priority
 - ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - ☒ Box No. IV Lack of unity of invention
 - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - ☒ Box No. VI Certain documents cited
 - ☐ Box No. VII Certain defects in the international application
 - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
05.04.2004	08.09.2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Fernando Farieta/BS Telephone No. +46 8 782 25 00

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☒ the international application as originally filed/furnished

☐ the description:

pages _____ as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ the claims:

pages _____ as originally filed/furnished
pages* _____ as amended (together with any statement) under Article 19
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ the drawings:

pages _____ as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing *(specify)*: _____
☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing *(specify)*: _____
☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

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Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application

☒ claims Nos. Claims 1, 16 and Part of claims 10-14

because:

☒ the said international application, or the said claims Nos. Part of claims 10-14 relate to the following subject matter which does not require an international preliminary examination *(specify)*:

See PCT Rule 67.1.(iv).: Methods for treatment of the human or animal body by surgery or therapy, as well as diagnostic methods, as longer as it pertains to in-vivo diagnosis.

☒ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. 1 and 16 are so unclear that no meaningful opinion could be formed *(specify)*:

Claims 1 and 16 relate to "any molecular structure" defined by reference to a desirable characteristic or property, namely to bind to an active site (AFP).

☒ the claims, or said claims Nos. 1 and 16 are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claims Nos. 1 and 16

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form
- ☐ has not been furnished
- ☐ does not comply with the standard

the computer readable form
- ☐ has not been furnished
- ☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in the Annex C-*bis* of the Administrative Instructions.

☐ See Supplemental Box for further details.

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Box No. IV Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☒ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:

- ☐ complied with.
- ☒ not complied with for the following reasons:

The International Search Authority found two inventions in this international application, as follows:

1: Claims 5-6, 8 and part of claims 2-4, 7 and 15.
Peptides with the general formula CCRGDVLDnXmY related to variants of human alpha-fetoprotein (AFP).

2: Claims 9 and part of claims 2-4, 7 and 9.
Peptides with the general formula CCHGDLLEnXmY related to variants of human serum albumin.

The present application has been considered to contain two inventions which are not linked such that they form a single general inventive concept, as required by Rules 13.1, 13.2 and 13.3 PCT for the following reasons:

The prior art has been identified as: WO 98/35981 (D1).

D1 discloses methods for preventing or for treating cancer, including hepatocellular carcinoma, in a mammal where the cancer bears at least a portion of the alphafetoprotein molecule on its surface by creating an immune response in the

.../...

4. Consequently, this report has been established in respect of the following parts of the international application:

- ☐ all parts.
- ☒ the parts relating to claims Nos. 2-4,7,15

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box IV

mammal to at least part of the alphafetoprotein molecule.

The special technical feature of invention 1 that makes a contribution over this prior art (Rule 13.2 PCT) is a mutation in the polypeptide with the general formula CCRGDVLDnXmY related to variants of human alpha-fetoprotein (AFP).

In conclusion, the inventions are not linked by common or corresponding special technical features and define different inventions not linked by a single general inventive concept. The application, hence, does not meet the requirements of unity of invention as defined in Rule 13.1 and 13.2 PCT.

The ISA has carried out a search which relates to invention 1, corresponding to claims 5-6, 8 and part of claims 2-4, 7, 10-15.

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Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	2-4,7, 15 and part of 10-14	YES
	Claims		NO
Inventive step (IS)	Claims	2-4,7, 15 and part of 10-14	YES
	Claims		NO
Industrial applicability (IA)	Claims	2-4,7, 15 and part of 10-14	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The following document have been found to be relevant:

D1: WO 98/35981 A1

Document D1 presents table I with variants of AFP (1-66).

D2: "RGD peptide-induced apoptosis in human leukaemia HL-60 cells requires caspase-3 activation". CD Anuradha et al. Cell Biology and Toxicology, 2000; 16:275-283.

Document D2 relates to RGD motif-containing peptides used in various studies of cell adhesion and growth.

Novelty (N) and Inventive Step (IS)

The cited documents represent the general state of the art. The invention defined in claims 2-4,7, 15 and part of 10-14 is not disclosed by any of these documents.

The cited prior art does not give any indication that would lead a person skilled in the art to the claimed peptide structures. Therefore, the claimed invention is not obvious to a person skilled in the art.

Accordingly, the invention defined in claims 2-4,7, 15 and part of 10-14 is novel and is considered to involve an inventive step. The invention is industrially applicable.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date *(day/month/year)*	Filing date *(day/month/year)*	Priority date (valid claim) *(day/month/year)*
WO 03007978 A1	30.01.2003	02.06.2001	01.06.2000

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure *(day/month/year)*	Date of written disclosure referring to non-written disclosure *(day/month/year)*